

## PATENT COOPERATION TREATY

**PCT**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P31792-P0	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/JP2003/014301	International filing date ( <i>day/month/year</i> ) 11 November 2003 (11.11.2003)	Priority date ( <i>day/month/year</i> ) 10 December 2002 (10.12.2002)
International Patent Classification (IPC) or national classification and IPC H02M 3/155		
Applicant MATSHUSITA ELECTRIC INDUSTRIAL CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a.  (*sent to the applicant and to the International Bureau*) a total of \_\_\_\_\_ sheets, as follows:

- sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b.  (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the report
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

Date of submission of the demand 01 June 2004 (01.06.2004)	Date of completion of this report 21 February 2005 (21.02.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/014301

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:

- international search (under Rules 12.3 and 23.1(b))
- publication of the international application (under Rule 12.4)
- international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

The international application as originally filed/furnished

the description:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_

any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_

any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP03/14301

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1-5	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims		NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

Document 1: JP, 2002-119058, A (Densei-Lambda K.K.), 19 April, 2002 (19.04.02)

Document 2: JP, 60-255057, A (Hitachi, Ltd.), 16 December, 1985 (16.12.85)

Document 3: JP, 2000-156970, A (Denso Corp.), 6 June, 2000 (06.06.00)

Document 4: JP, 8-242577, A (Sony Corp.), 17 September, 1996 (17.09.96)

Document 5: US, 6147477, A (Mitsuo Saeki, et al.), 14 November, 2000 (14.11.00)

Document 6: JP, 2002-159173, A (Sony Corp.), 31 May, 2002 (31.05.02)

Document 7: Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No. 120748/1985 (Laid-open No. 29784/1987) (Fuji Electric Co., Ltd.), 23 February, 1987 (23.02.87)

The subject matters of claims 1-5 do not appear to involve an inventive step in view of documents 1-3 cited in the ISR. (A) The synchronous rectification system DC-DC converter power supply described in document 1, in which (1) a first switching power supply means and a second switching power supply means with a commonly connected input are provided, and (2) the output of a first drive means of the first switching power supply means is used to drive a third switching means connected in parallel to a second rectification means of the second switching power supply means, for synchronous rectification action, and (B) the first and second switching power supply means connected in parallel to each other described in document 2, in which a common oscillation/control means is used to drive first and second switching elements, belong to technical fields closely related to each other. So, a person skilled in the art could have easily conceived of applying the drive of first and second switching elements by a common oscillation/control means described in document 2, to the synchronous rectification system DC-DC converter having first and second switching power supply means of document 1.

Furthermore, document 1 (Fig. 4) also discloses a constitution having the first switching power supply means and the second switching power supply means with a commonly connected input, in which the OFF period of one switching element includes the OFF period of the other switching element.

Moreover, document 1 ([0037]) also discloses that two or more switching power supply means with a commonly connected input are provided.